

e-Infrastructure landscape: ASREN Perspective

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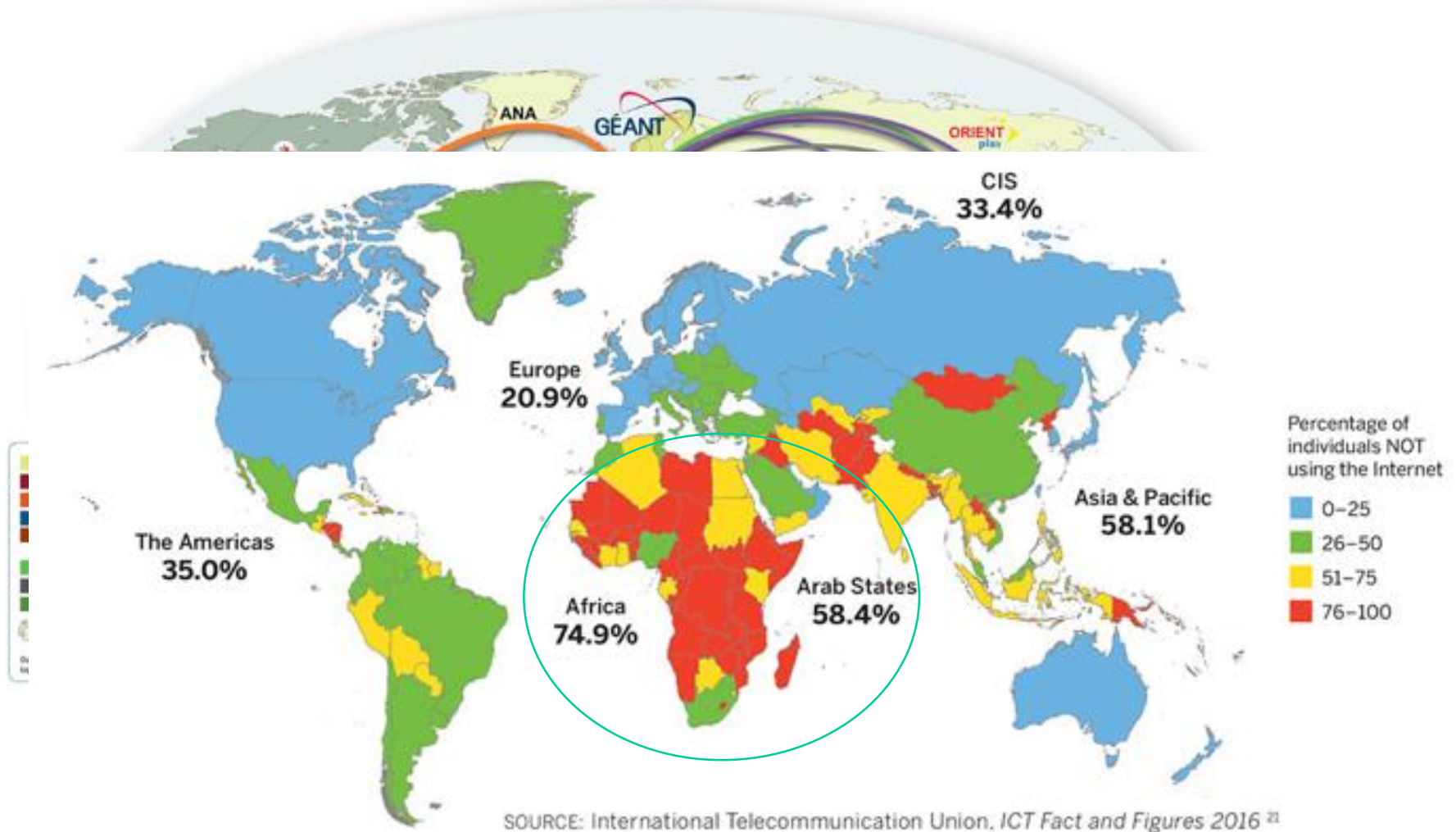
Background

- EC e-Infrastructures (2004)
- NSF cyberinfrastructures (2005)
- Common definition
 - New types of **research environments** that support **shared access** to computationally intensive services and data intensive repositories
- Mainly composed of:
 - High-speed **networks**
 - Grids of high-performance **computing** centers
 - Extensive data **storage** capabilities
 - Comprehensive libraries of scientific **data**
 - Online instruments and vast **sensor** arrays
 - Interoperable suit of **software** and middleware services and tools
 - **Research** communities (virtual)

Collaboration

- Culture of collaboration is key to success
 - Engage research communities through **collaborative** relationships
 - Advance common innovation as fuel to **knowledge** economy
 - Enable discovery through information **access**
 - Campus -> NRENs -> RRENs
- UN – Sustainable Develop Goals (17 **SDGs**)
 - Research collaboration drives **progress** towards the achievement of SDGs: Education, Poverty, Health, **Environment**, Society, Partnership, Economy,.... Infrastructure Resilience

Global High-Speed Networks



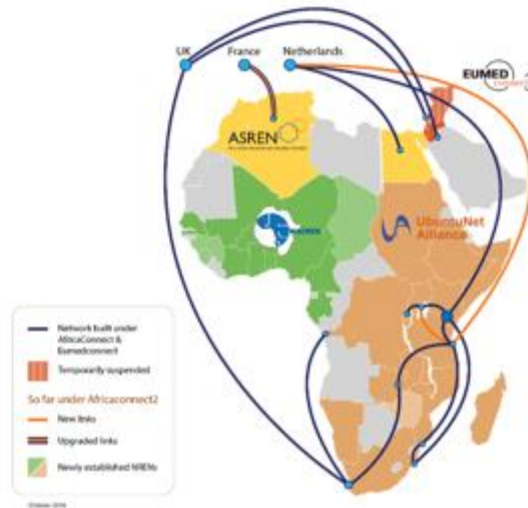
Regional Networks- EC Funding (since 2004)

Before and After AfricaConnect & EumedConnect

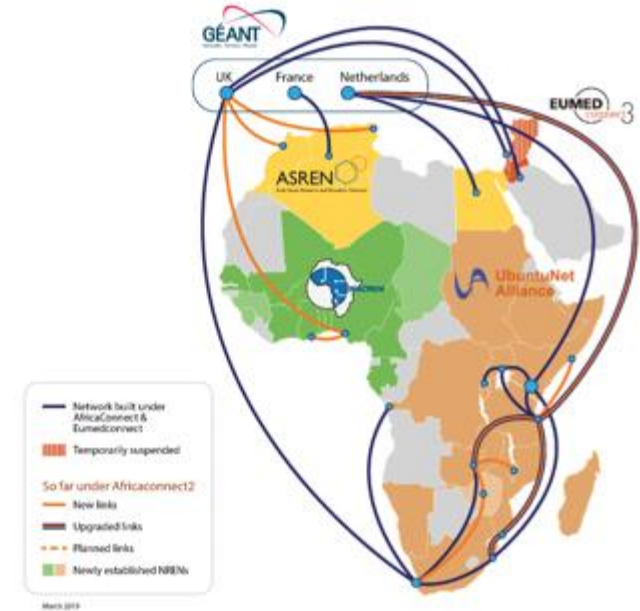
October 2010



October 2016

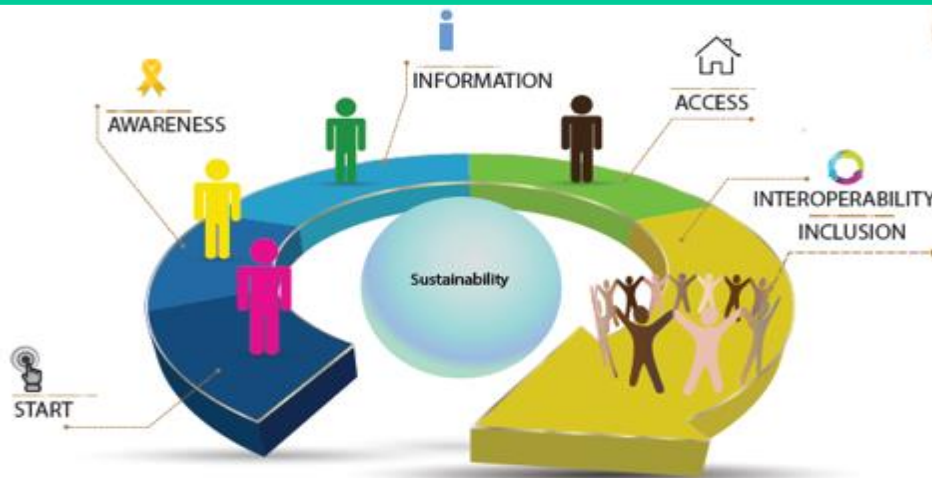


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Evolving e-Infrastructures

- Interlinking high-speed networks (N/REN)
- Distributed computing, storage, and data resources (HPC, Cloud, Libraries, VRCs: Energy, Health, Environment, Culture, Genome,...)
- Collaborative middle-ware services
- Interoperation and integration of applications and services (Identity Federation, eduroam, EduGAIN), Security?



Arab NRENs

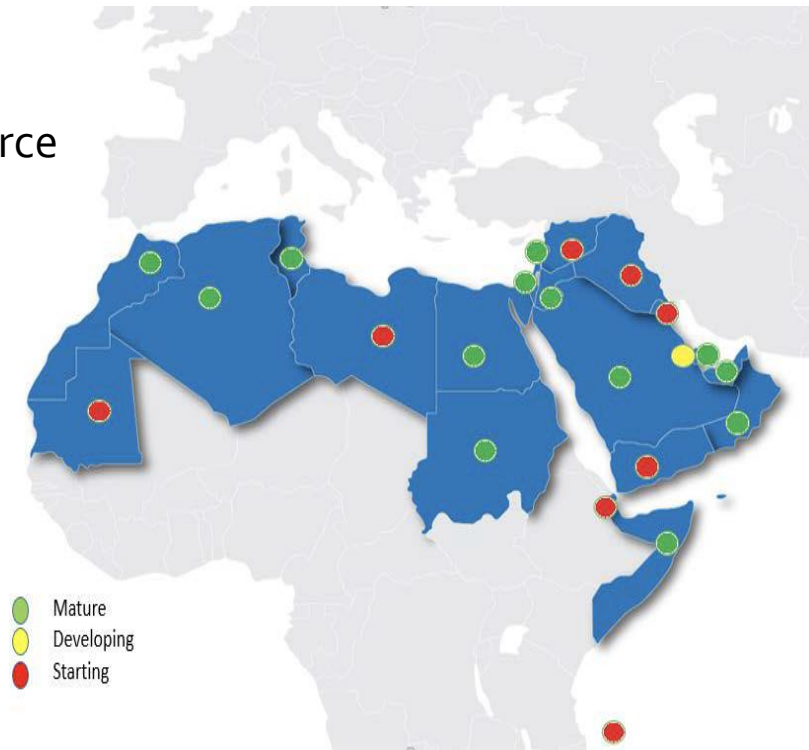
Potential

- Vital energy of estimated 200 million youth in 22 Arab state countries – vast knowledge source



Arab States Research and Education Network

- German NGO, hosted at TAG Global and closely coordinates with League of Arab States
- Shareholders: Abu-Ghazaleh GmbH, JUNET (Jordan), EUN (Egypt), CNRST (Morocco), SudREN (Sudan), CCK (Tunis), SomaliREN, PalestineREN, IraqREN
- EC- funded projects:
 - EUMEDCONNECT, Africaconnect



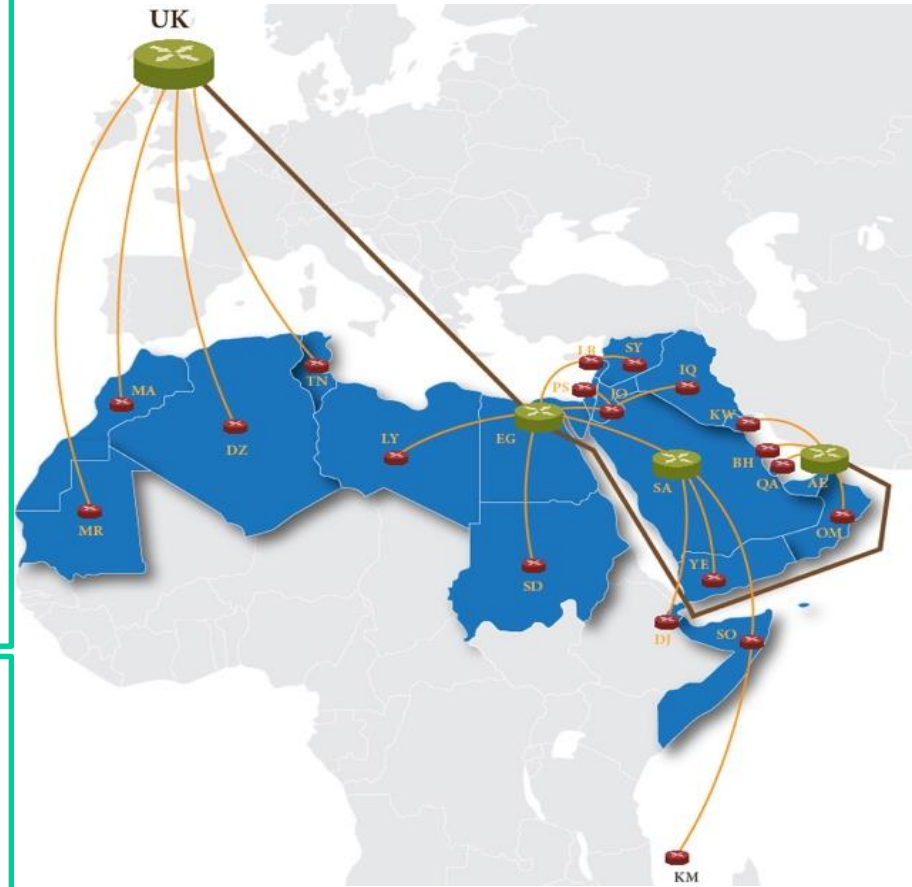
Prospective Regional Network

International links

- Jordan 1Gbps link operational - SESAME
- Lebanon AUB 3.6 Gbps operational
- Algeria 10 Gbps link operational
- 1 Gbps GRE tunnels (Egypt, Morocco, Tunisia)
- AC3: 10 Gbps IRU through a PoP in Egypt, London PoP (AGE – OP), GEANT data center
- NOC operated by ASREN and GEANT
- 10 Gbps cross connect to Open GEANT, linking to GEANT, Internet2, RedClara, Ubuntunet

Fujairah Giga PoP (AGE – OX1)

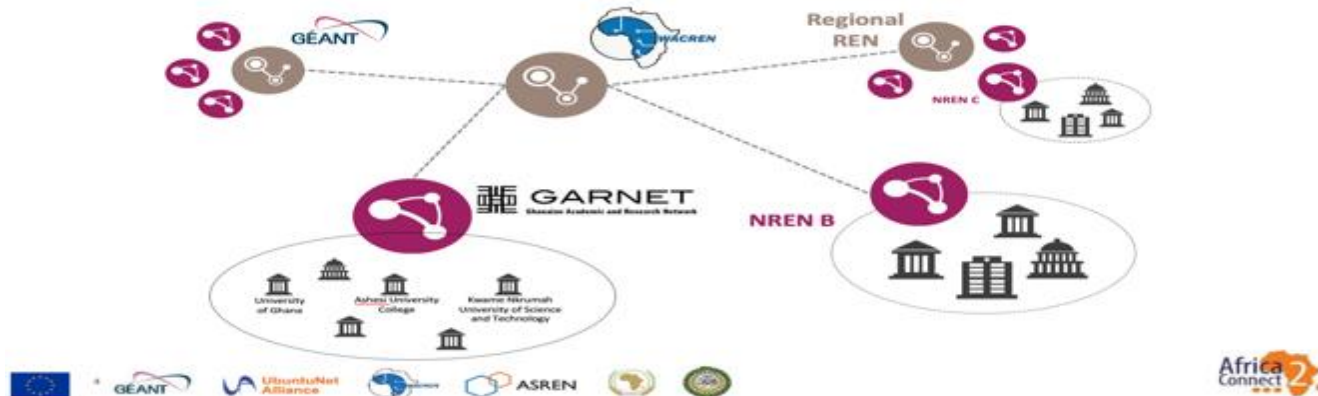
- In collaboration with Ankabut
- ## Maadi PoP (AGE – OX2)
- In collaboration with EUN
- ## Jeddah PoP (AGE – OX2)
- In collaboration with MAEN



Prospective Regional Services

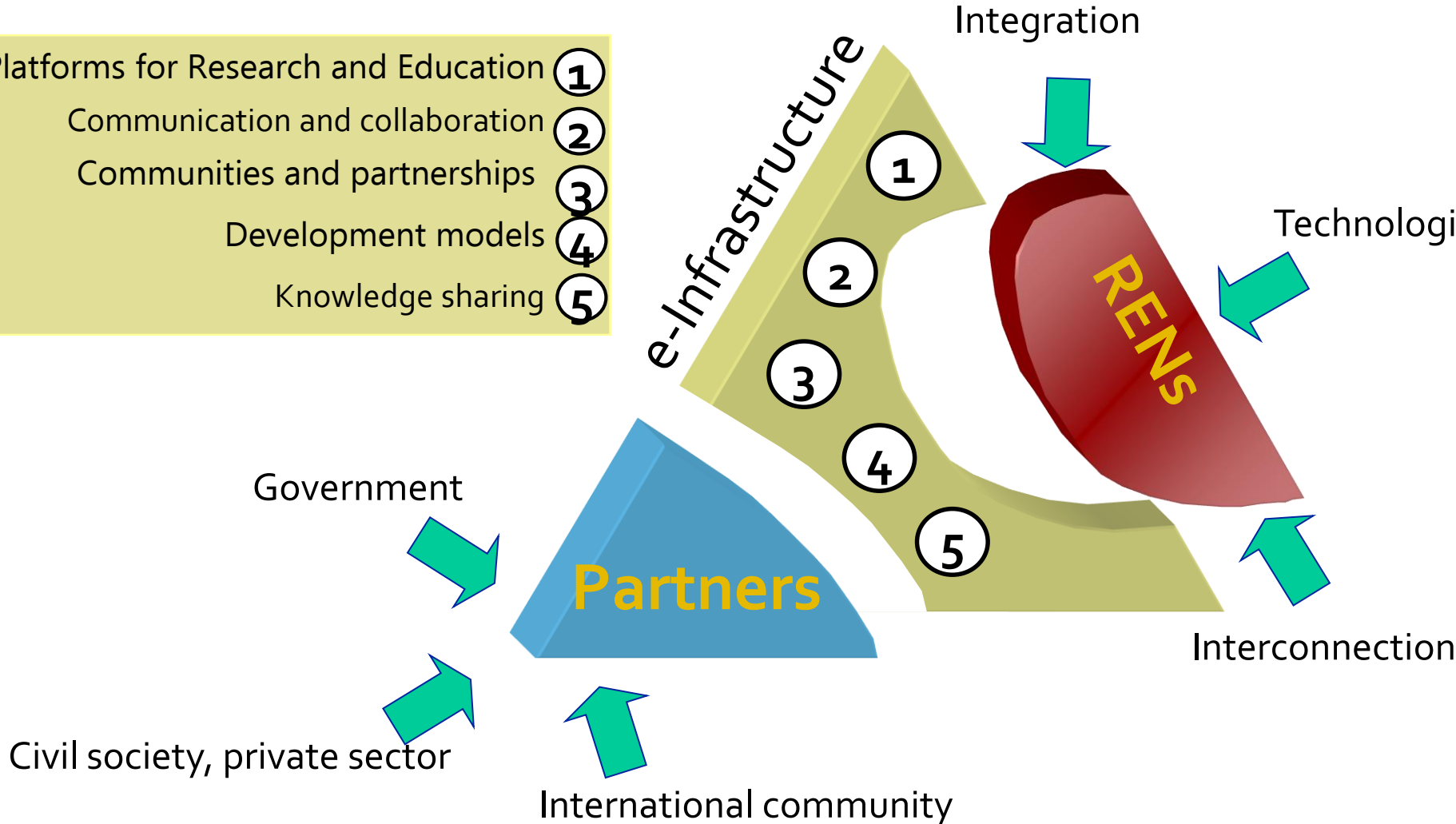
Motivated by AfricaConnect3 and EUMEDCONNECT3

- African Open Science Cloud an initial step
- Federation of identities, eduroam, eduGAIN,
- Cybersecurity to strengthen N/REN security
- Access to library resources
- Engage with research communities: AfriGEO and GMES
- Journal of e-Infrastructures



Ecosystem for Success

- Platforms for Research and Education ①
- Communication and collaboration ②
- Communities and partnerships ③
- Development models ④
- Knowledge sharing ⑤



Thanks for your attention!